



NAUTICAL EQUIPMENT
2014





The company ASTEL d.o.o. was established in 1991 and has been one of the leading European manufacturers of video surveillance equipment for over a decade. Experience in the field of security systems led to the development and production of electronic marine equipment that provides a high level of safety and dependability of operation. The ASTEL MARINE brand name was launched in 2004 and very soon it has become one of the leading brand name in marine industry.

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Due to continuous product improvement all specifications and design are subject to change without notice.

Interior & Exterior LED Lights

Compact LED light with electronic driver built-in waterproof anodized aluminium casing designed by using 1, 2 or 6 high-power LEDs with built-in microprocessor which enables network connections and remote control with digital dimming.

Multi-color RGBW models offer the best illumination quality of different white lighting and microprocessor-controlled changing of white and all other colors of lighting manually or automatically through the complete rainbow spectrum. The light is designed to adjust the requested white lighting in 21 steps.

Built-in ASTEL protocol enables complete lighting control by using optional DMX512 interfaces MXU01 or MXU03.

Advanced optical system with reflector and holographic diffuser allows perfect light spread with different color temperature options for interior and exterior.

Due to wide range of prestige massive face shapes made of aluminium or stainless steel the INTENSA is suitable to fit on both luxury yachts and superyachts.

All models are designed for operating at extreme temperature and voltage conditions with thermal, transient and reverse polarity protections.



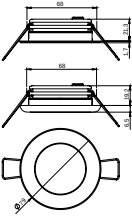
- Innovative Design
- Anodized Aluminium Casings
- 1, 2 or 6 High-Power LEDs Design
- Different Face Shapes and Finishes
- White, Blue, Green, Red or RGBW Multi-Color Lighting
- Reflector with Holographic Diffuser
- Microprocessor Control
- Digital Dimming
- DMX512 Network Control
- Polarity Protection
- Transient Protection
- Thermal Protection
- Wide Range Power Supply
- Low Power Consumption
- Simple Installation



Simply...the brightest

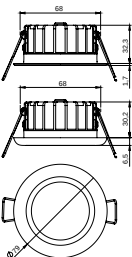
INTENSA MRM0115

Power Supply	12-24 Vdc, max. 250 mA/12 Vdc or 125 mA/24 Vdc
Reflector angle	130°
Optical window	High-grade polycarbonate glass
Luminous flux	250 lm
White color temperature	4500K (daylight) or 3000K (warm)
Casing	Black anodized aluminium
Dimensions	Ø79mm x 26mm (C) or Ø79mm x 23mm (M)
Mounting hole	Ø68mm x 20mm (C) or Ø68mm x 22mm (M)
Weight	Aluminium front shape 145g (C) or 125g (M) Stainless steel front shape 225g (C) or 160g (M)



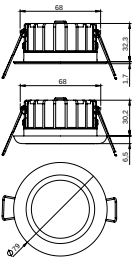
INTENSA MRM0220

Power supply	12-24 Vdc, max. 400 mA/12 Vdc or 200 mA/24 Vdc
Reflector angle	130°
Optical window	High-grade polycarbonate glass
Luminous flux	360 lm
White color temperature	4500K (daylight) or 3000K (warm)
Casing	Black anodized aluminium
Dimensions	Ø79mm x 26mm (C) or Ø79mm x 23mm (M)
Mounting hole	Ø68mm x 20mm (C) or Ø68mm x 22mm (M)
Weight	Aluminium front shape 145g (C) or 125g (M) Stainless steel front shape 225g (C) or 160g (M)



INTENSA MRM0620

Power supply	12-24 Vdc, max. 480 mA/12 Vdc or 240 mA/24 Vdc
Reflector angle	120°
Optical window	High-grade polycarbonate glass
Luminous flux	350 lm
White color temperature	Adjustable, from 2500K to 7500K in 21 steps
Casing	Black anodized aluminium
Dimensions	Ø79mm x 37mm (C) or Ø79mm x 34mm (M)
Mounting hole	Ø68mm x 31mm (C) or Ø68mm x 33mm (M)
Weight	Aluminium front shape 145g (C) or 125g (M) Stainless steel front shape 225g (C) or 160g (M)



Control

I	internal dimming control, 2-wire system
E	external dimming control, 3-wire system

Front shape

CAW	classic, painted white aluminium
CAB	classic, painted beige aluminium
CSP	classic, polished stainless steel
CSG	classic, polished gold (PVD) stainless steel
CSS	classic, satin stainless steel
MAW	modern, painted white aluminium
MAB	modern, painted beige aluminium
MSP	modern, polished stainless steel
MSG	modern, polished gold (PVD) stainless steel
MSS	modern, satin stainless steel

Color of lighting - INTENSA MRM0115 and MRM0220

W	warm white
D	daylight white
B	blue
G	green
R	red

Color of lighting - INTENSA MRM0620

M	RGBW multi-color
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Interior & Exterior LED Lights

Compact LED light designed with 1, 3 or 6 high-power LEDs with electronic driver built-in waterproof anodized aluminium casing for surface mounting.

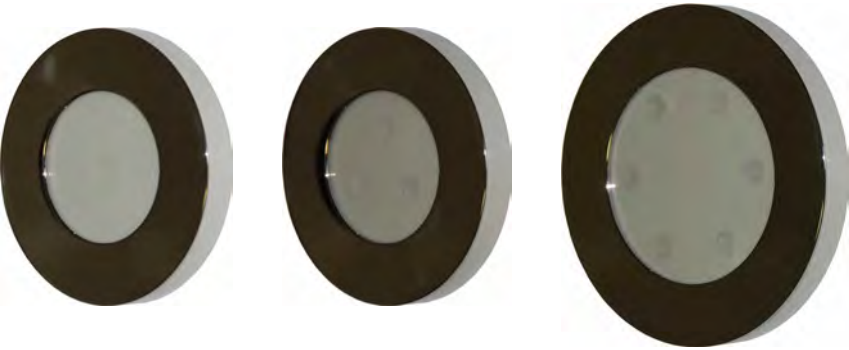
Innovative electronic design with built-in microprocessor enables network connections and remote control with digital dimming.

Built-in ASTEL protocol enables complete lighting control by using optional DMX512 interfaces MXU01 or MXU03.

Advanced optical system with reflector and holographic diffuser allows perfect light spread. Different colour temperature options offer perfect solutions in the interior and exterior.

Due to wide range of prestige massive face shapes made of alluminium or stainless steel the ASTRA is suitable to fit on luxury yachts and superyachts.

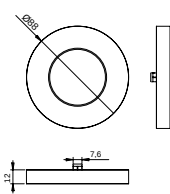
All models are designed for operating at extreme temperature and voltage conditions with thermal, transient and reverse polarity protections.



- 1, 3 or 6 High-Power LEDs Design
- Anodized Aluminium Casings
- Massive Face Shapes with Different Finishes
- White, Blue, Green or Red Lighting
- Reflector with Holographic Diffuser
- Microprocessor Control
- Digital Dimming
- DMX512 Network Control
- Polarity Protection
- Transient Protection
- Thermal Protection
- Wide Range Power Supply
- Low Power Consumption
- Simple Installation

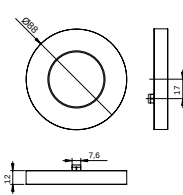
ASTRA MSM0115

Power supply	12-24 Vdc, max. 300 mA/12 Vdc or 155 mA/24 Vdc
Reflector angle	100°
Optical window	High-grade polycarbonate glass
Luminous flux	270 lm
White color temperature	4500K (daylight) or 3000K (warm)
Casing	Black anodized aluminium
Dimensions	Ø88 mm x 12 mm
Weight	Aluminium front shape 170g Stainless steel front shape 260g



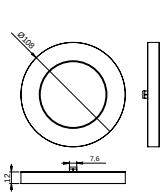
ASTRA MSM0320

Power supply	12-24 Vdc, max. 330 mA/12 Vdc or 185 mA/24 Vdc
Reflector angle	100°
Optical window	High-grade polycarbonate glass
Luminous flux	350 lm
White color temperature	4500K (daylight) or 3000K (warm)
Casing	Black anodized aluminium
Dimensions	Ø88 mm x 12 mm
Weight	Aluminium front shape 170g Stainless steel front shape 260g



ASTRA MSM0650

Power supply	12-24 Vdc, max. 600 mA/12 Vdc or 315 mA/24 Vdc
Reflector angle	100°
Optical window	High-grade polycarbonate glass
Luminous flux	680 lm
White color temperature	4500K (daylight) or 3000K (warm)
Casing	Black anodized aluminium
Dimensions	Ø108 mm x 12 mm
Weight	Aluminium front shape 250g Stainless steel front shape 350g



Control

I	internal dimming control, 2-wire system
E	external dimming control, 3-wire system

Front shape

AW	painted white aluminium
AB	painted beige aluminium
SP	polished stainless steel
SG	polished gold (PVD) stainless steel
SS	satın stainless steel

Color of lighting

W	warm white
D	daylight white
B	blue
G	green
R	red



Interior & Exterior LED Lights

Innovative multi-color RGB LED interior & exterior light built-in waterproof stainless steel casing with different front shapes. It is suitable for using as interior and exterior downlight and step or staircase light to light to the floor under the angle of 45 degrees or straight.

The main feature is that ARCUS MSR01 series allows changing of the color of lighting manually or automatically through the complete rainbow spectrum.

The most advanced electronic design with built-in microprocessor enables network connection and simple control of complete group of the lights.

Built-in ASTEL protocol enables complete lighting control by using optional DMX512 interfaces MXU01 or MXU03.

All the models are available in polished stainless steel casings with multi-color RGB lighting with 1 high-brightness LED.



- Innovative Design
- Stainless Steel Casings
- Different Face Shapes
- Multi-Color RGB Lighting
- Reflector with Holographic Diffuser
- Microprocessor Control
- DMX512 Network Control
- Polarity Protection
- Transient Protection
- Wide Range Power Supply
- Low Power Consumption
- Simple Installation



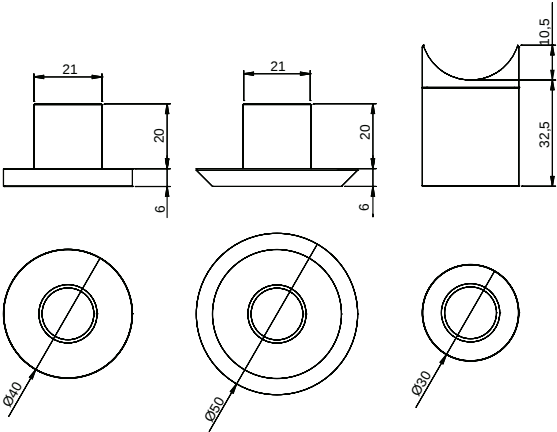
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ARCUS MRM01	
Power supply	12-24 Vdc, max. 32 mA/12 Vdc or 18 mA/24 Vdc
Lens angle	60° (angular lighting) or 90° (straight lighting)
Optical window	High-grade polycarbonate glass
Luminous flux	9 lm
Lighting color	RGB spectrum
Operating temperature	-10°C - +50°C
Casing	Stainless steel (SAE316L)
Protection	IP 68
Dimensions	Ø40 mm x 26mm (slope front shape)
	Ø50 mm x 26mm (gentle front shape)
	Ø30 mm x 43mm (rail-mount model)
Weight	75g (slope front shape)
	95g (gentle front shape)
	150g (rail-mount model)

Front shape	
S	round slope
QS	square slope
G	round gentle
QG	square gentle
R	rail-mount

Direction of lighting	
S	straight
A	angular (not for rail-mount model)

Color of lighting	
M	RGB multi-color



Underwater LED Lights

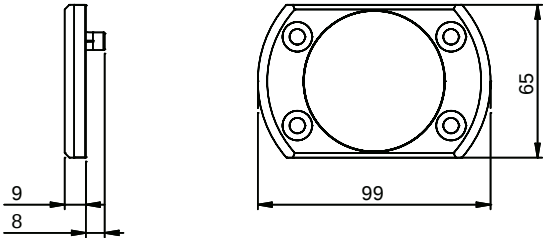
Ultra-thin compact surface-mount design with built-in driver enables very simple installation on the stern and both sides of the hull without making any bigger holes through the hull under waterline.

Single-color light control by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol

Multi-color RGB light control with dimming and changing of color of lighting manually or automatically through the complete rainbow spectrum by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 with built-in ASTEL protocol.



- Innovative and Patented Design
- Aluminium Bronze or Stainless Steel Ultra-Thin Casing
- 6 Power LEDs Design
- White, Blue, Green or RGB Multi-Color Lighting
- High Grade Polycarbonate Glass Optical Window
- Vacuum Metalized Reflector
- Remote Control
- Digital Dimming
- DMX512 Network Control
- Polarity Protection
- Transient Protection
- Thermal Protection
- Wide Range Power Supply
- Low Power Consumption
- Simple Installation



PATENTED

EQUATOR MSR0640	
Power supply	12-24 Vdc, max. 680 mA/12 Vdc or 380 mA/24 Vdc
Lens angle	60°
Optical window	High-grade polycarbonate glass
Luminous flux	650 lm
White color temperature	6.000 - 10.000 K
Operating temperature	-10°C - +50°C
Casing	Aluminium bronze (AB2) or stainless steel (SAE316L)
Protection	IP 68
Dimensions	99 x 65 x 9 mm
Weight	0.3 kg

Material of casing
AB2 aluminium bronze
SSP stainless steel

Color of lighting
W white
B blue
G green
M RGB multi-color



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Underwater LED Lights

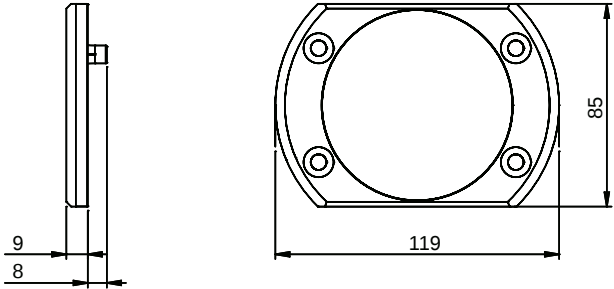
Ultra-thin compact surface-mount design with built-in driver enables very simple installation on the stern and both sides of the hull without making any bigger holes through the hull under waterline.

Single-color light control by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol

Multi-color RGB light control with dimming and changing of color of lighting manually or automatically through the complete rainbow spectrum by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 with built-in ASTEL protocol.



- Innovative and Patented Design
- Aluminium Bronze or Stainless Steel Ultra-Thin Casing
- 12 Power LEDs Design
- White, Blue, Green or RGB Multi-Color Lighting
- High Grade Polycarbonate Glass Optical Window
- Vacuum Metalized Reflector
- Remote Control
- Digital Dimming
- DMX512 Network Control
- Polarity Protection
- Transient Protection
- Thermal Protection
- Wide Range Power Supply
- Low Power Consumption
- Simple Installation



PATENTED

EQUATOR MSR1280

Power supply	12-24 Vdc, max. 1.4 A/12 Vdc or 650 mA/24 Vdc
Lens angle	60°
Optical window	High-grade polycarbonate glass
Luminous flux	1.300 lm
White color temperature	6.000 - 10.000 K
Operating temperature	-10°C - +50°C
Casing	Aluminium bronze (AB2) or stainless steel (SAE316L)
Protection	IP 68
Dimensions	119 x 85 x 9 mm
Weight	0.4 kg

Material of casing

AB2	aluminium bronze
SSP	stainless steel

Color of lighting

W	☐ white
B	☐ blue
G	☐ green
M	☐ RGB multi-color



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Underwater LED Lights

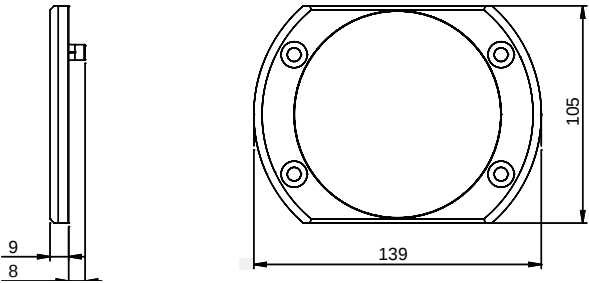
Ultra-thin compact surface-mount design with built-in driver enables very simple installation on the stern and both sides of the hull without making any bigger holes through the hull under waterline.

Single-color light control by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol

Multi-color RGB light control with dimming and changing of color of lighting manually or automatically through the complete rainbow spectrum by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 with built-in ASTEL protocol.



- Innovative and Patented Design
- Aluminium Bronze or Stainless Steel Ultra-Thin Casing
- 36 Power LEDs Design
- White, Blue, Green or RGB Multi-Color Lighting
- High Grade Polycarbonate Glass Optical Window
- Vacuum Metalized Reflector
- Remote Control
- Digital Dimming
- DMX512 Network Control
- Polarity Protection
- Transient Protection
- Thermal Protection
- Wide Range Power Supply
- Low Power Consumption
- Simple Installation



EQUATOR MSR36240

Power supply	12-24 Vdc, max. 4.3 A/12 Vdc or 1.9 A/24 Vdc
Lens angle	60°
Optical window	High-grade polycarbonate glass
Luminous flux	max. 3.900 lm
White color temperature	6.000 - 10.000 K
Operating temperature	-10°C - +50°C
Casing	Aluminium bronze (AB2) or stainless steel (SAE316L)
Protection	IP 68
Dimensions	139 x 105 x 9 mm
Weight	0.6 kg

Material of casing

AB2	aluminium bronze
SSP	stainless steel

Color of lighting

W	☐ white
B	☐ blue
G	☐ green
M	☐ RGB multi-color

PATENTED



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Underwater LED Lights

Registered slope-truncated cone designed casing for installation on the hull to light in different directions to the sea ground and to the both sides of the yacht.

Surface-mount designed casing enables very simple installation on the hull without making any bigger holes through the hull under water line.

Single-color light control by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol

Multi-color RGB light control with dimming and changing of color of lighting manually or automatically through the complete rainbow spectrum by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol.



- Aluminium Bronze or Anodized Aluminium Casing
- 6 or 18 High-Power LEDs Design
- White, Blue, Green, Three-Color or RGB Multi-Color Lighting
- Tempered Glass Optical Window
- High-Efficiency Lens
- Polarity Protection
- Transient Protection
- Thermal Protection
- Low Power Consumption
- Simple Installation
- Remote Control
- Digital Dimming (optional)
- DMX512 Network Control (optional)

Material of casing	
AB2	aluminium bronze
ALN	anodized aluminium
Color of lighting - CONUS MST0680	
W	☐ white
B	☐ blu
G	☐ green
Color of lighting - CONUS MST18240	
W	☐ white
B	☐ blue
G	☐ green
3W	☐ ☐ ☐ white-blue-green
3R	☐ ☐ ☐ RGB multi-color

CONUS MST0680
Power requirement 1.5 A (white)
Lens angle 50°
Optical window 6 mm depth tempered glass
Luminous flux 3.000 lm (white)
White color temperature 6.000 - 10.000 K
Operating temperature -10°C - +50°C
Casing Aluminium bronze (AB2) or anodized aluminium
Protection IP 68
Dimensions 160x103x64mm
Weight 2.4 kg (bronze) / 0.9 kg (aluminium)

Power Supply Unit MPS021500
Input voltage 24 Vdc
Consumption max. 1.7 Adc
Operating temperature -10°C - +50°C
Casing ABS
Protection IP 65
Dimensions 127x111x55.5mm
Weight 0.3 kg

CONUS MST18240
Power requirement 3x1.5 A (white)
Lens angle 50°
Optical window 6 mm depth tempered glass
Luminous flux 9.000 lm (white)
White color temperature 6.000 - 10.000 K
Operating temperature -10°C - +50°C
Casing Aluminium bronze (AB2) or anodized aluminium
Protection IP 68
Dimensions 217x142x85mm
Weight 6.0 kg (bronze) / 2.3 kg (aluminium)

Power Supply Unit MPS061500
Input voltage 24 Vdc
Consumption max. 5 Adc
Operating temperature -10°C - +50°C
Casing ABS
Protection IP 65
Dimensions 200x160x55.5mm
Weight 0.6 kg



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Underwater LED Lights

Registered slope-truncated cone designed casing for installation on the hull to light in different directions to the sea ground and to the both sides of the yacht.

Surface-mount designed casing enables very simple installation on the hull without making any bigger holes through the hull under water line.

Single-color light control by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol

Multi-color RGB light control with dimming and changing of color of lighting manually or automatically through the complete rainbow spectrum by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol.

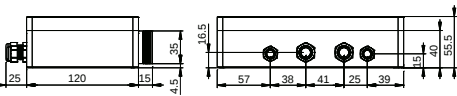
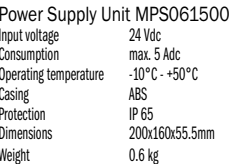
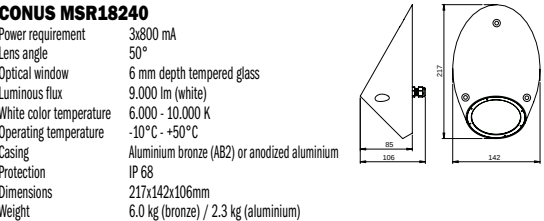
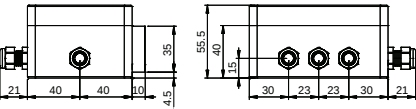
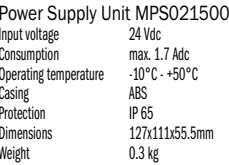
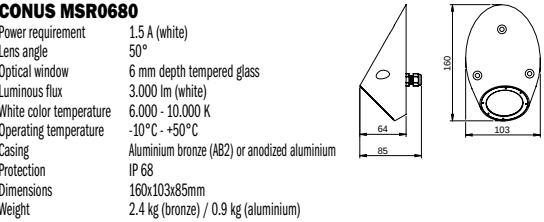


- Aluminium Bronze or Anodized Aluminium Casing
- 6 or 18 High-Power LEDs Design
- White, Blue, Green, Three-Color or RGB Multi-Color Lighting
- Tempered Glass Optical Window
- High-Efficiency Lens
- Polarity Protection
- Transient Protection
- Thermal Protection
- Low Power Consumption
- Simple Installation
- Remote Control
- Digital Dimming (optional)
- DMX512 Network Control (optional)

Material of casing
AB2 aluminium bronze
ALN anodized aluminium

Color of lighting - CONUS MSR0680
W ☐ white
B ☐ blue
G ☐ green

Color of lighting - CONUS MSR18240
W ☐ white
B ☐ blue
G ☐ green
3W ☐ ☐ ☐ white-blue-green
3R ☐ ☐ ☐ RGB multi-color



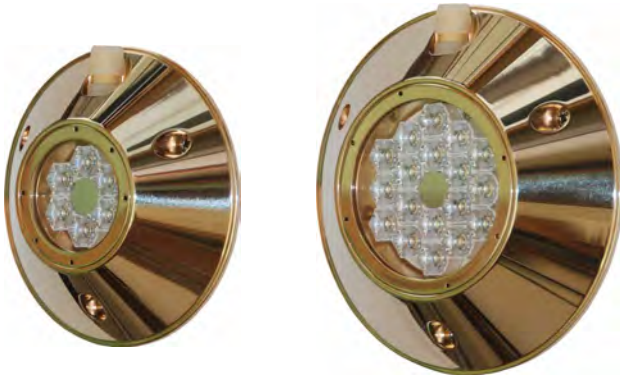
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Underwater LED Lights

Truncated cone surface-mount designed casing enables very simple installation on the hull without making any bigger holes through the hull under water line.

Single-color light control by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol

Multi-color RGB light control with dimming and changing of color of lighting manually or automatically through the complete rainbow spectrum by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol.

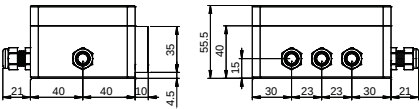


- Aluminium Bronze or Anodized Aluminium Casing
- 6 or 18 High-Power LEDs Design
- White, Blue, Green, Three-Color or RGB Multi-Color Lighting
- Tempered Glass Optical Window
- High-Efficiency Lens
- Polarity Protection
- Transient Protection
- Thermal Protection
- Low Power Consumption
- Simple Installation
- Remote Control
- Digital Dimming (optional)
- DMX512 Network Control (optional)

Material of casing	
AB2	aluminium bronze
ALN	anodized aluminium
Color of lighting - CONVEX MST0680	
W	☐ white
B	☐ blue
G	☐ green
Color of lighting - CONVEX MST18240	
W	☐ white
B	☐ blue
G	☐ green
3W	☐ ☐ ☐ white-blue-green
3R	☐ ☐ ☐ RGB multi-color

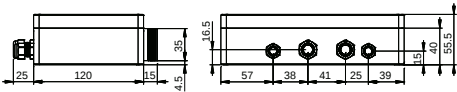
CONVEX MST0680	
Power requirement	1.5 A (white)
Lens angle	50°
Optical window	6 mm depth tempered glass
Luminous flux	3.000 lm (white)
White color temperature	6.000 - 10.000 K
Operating temperature	-10°C - +50°C
Casing	Aluminium bronze (AB2) or anodized aluminium
Protection	IP 68
Dimensions	Ø136x34mm
Weight	2.0 kg (bronze) / 0.8 kg (aluminium)

Power Supply Unit MPS021500	
Input voltage	24 Vdc
Consumption	max. 1.7 Adc
Operating temperature	-10°C - +50°C
Casing	ABS
Protection	IP 65
Dimensions	127x111x55.5mm
Weight	0.3 kg



CONVEX MST18240	
Power requirement	3x1.5 A (white)
Lens angle	50°
Optical window	6 mm depth tempered glass
Luminous flux	9.000 lm (white)
White color temperature	6.000 - 10.000 K
Operating temperature	-10°C - +50°C
Casing	Aluminium bronze (AB2) or anodized aluminium
Protection	IP 68
Dimensions	Ø166x34mm
Weight	2.7 kg (bronze) / 1.1 kg (aluminium)

Power Supply Unit MPS061500	
Input voltage	24 Vdc
Consumption	max. 5 Adc
Operating temperature	-10°C - +50°C
Casing	ABS
Protection	IP 65
Dimensions	200x160x55.5mm
Weight	0.6 kg



Simply...the brightest

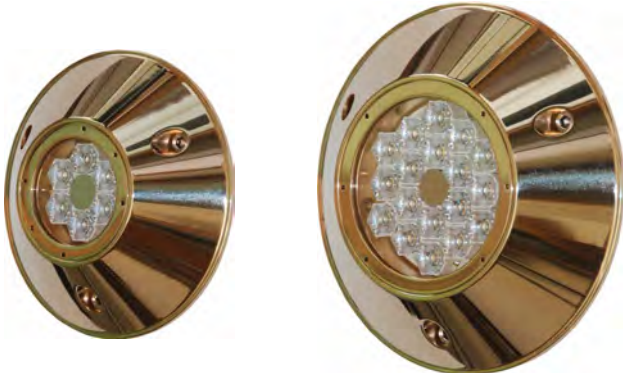


Underwater LED Lights

Truncated cone surface-mount designed casing enables very simple installation on the hull without making any bigger holes through the hull under water line.

Single-color light control by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol

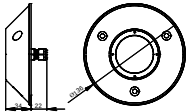
Multi-color RGB light control with dimming and changing of color of lighting manually or automatically through the complete rainbow spectrum by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol.



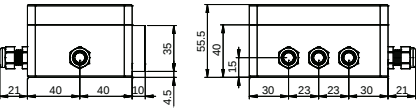
- Aluminium Bronze or Anodized Aluminium Casing
- 6 or 18 High-Power LEDs Design
- White, Blue, Green, Three-Color or RGB Multi-Color Lighting
- Tempered Glass Optical Window
- High-Efficiency Lens
- Polarity Protection
- Transient Protection
- Thermal Protection
- Low Power Consumption
- Simple Installation
- Remote Control
- Digital Dimming (optional)
- DMX512 Network Control (optional)

Material of casing	
AB2	aluminium bronze
ALN	anodized aluminium
Color of lighting - CONVEX MSR0680	
W	white
B	blue
G	green
Color of lighting - CONVEX MSR18240	
W	white
B	blue
G	green
3W	white-blue-green
3R	RGB multi-color

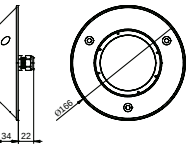
CONVEX MSR0680	
Power requirement	1.5 A (white)
Lens angle	50°
Optical window	6 mm depth tempered glass
Luminous flux	3.000 lm (white)
White color temperature	6.000 - 10.000 K
Operating temperature	-10°C - +50°C
Casing	Aluminium bronze (AB2) or anodized aluminium
Protection	IP 68
Dimensions	Ø136x34mm
Weight	2.0 kg (bronze) / 0.8 kg (aluminium)



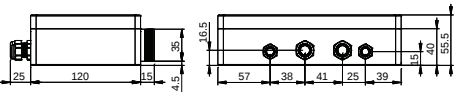
Power Supply Unit MPS021500	
Input voltage	24 Vdc
Consumption	max. 1.7 Adc
Operating temperature	-10°C - +50°C
Casing	ABS
Protection	IP 65
Dimensions	127x111x55.5mm
Weight	0.3 kg



CONVEX MSR18240	
Power requirement	3x1.5 A (white)
Lens angle	50°
Optical window	6 mm depth tempered glass
Luminous flux	9.000 lm (white)
White color temperature	6.000 - 10.000 K
Operating temperature	-10°C - +50°C
Casing	Aluminium bronze (AB2) or anodized aluminium
Protection	IP 68
Dimensions	166x34mm
Weight	2.7 kg (bronze) / 1.1 kg (aluminium)



Power Supply Unit MPS061500	
Input voltage	24 Vdc
Consumption	max. 5 Adc
Operating temperature	-10°C - +50°C
Casing	ABS
Protection	IP 65
Dimensions	200x160x55.5mm
Weight	0.6 kg



Simply...the brightest

Underwater LED Lights

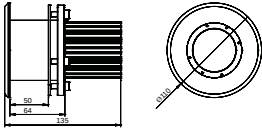
The underwater light designed to use the latest LED lighting technology for flush-mount installation where the most important is low-profile casing to avoid high water resistance and quality materials to assure very reliability installation and operation.

Single-color light control by using optional momentary switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol

Multi-color RGB light control with dimming and changing of color of lighting manually or automatically through the complete rainbow spectrum by using optional momentary switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol.

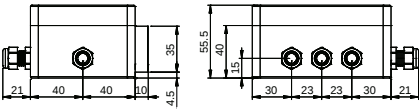
PLAQUE MFM0680

Power requirement	1.5 A (white)
Lens angle	50°
Optical window	6 mm depth tempered glass
Luminous flux	3.000 lm (white)
White color temperature	6.000 - 10.000 K
Operating temperature	-10°C - +50°C
Casing	Aluminium bronze (AB2)
Protection	IP 68
Dimensions	Ø110x135mm
Weight	2.3 kg



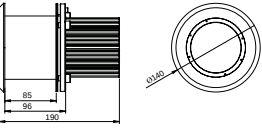
Power Supply Unit MPS021500

Input voltage	24 Vdc
Consumption	max. 1.7 Adc
Operating temperature	-10°C - +50°C
Casing	ABS
Protection	IP 65
Dimensions	127x111x55.5mm
Weight	0.3 kg



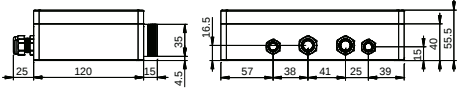
PLAQUE MFM18240

Power requirement	3x1.5 A (white)
Lens angle	50°
Optical window	6 mm depth tempered glass
Luminous flux	9.000 lm (white)
White color temperature	6.000 - 10.000 K
Operating temperature	-10°C - +50°C
Casing	Aluminium bronze (AB2)
Protection	IP 68
Dimensions	Ø140x190mm
Weight	6.7 kg



Power Supply Unit MPS061500

Input voltage	24 Vdc
Consumption	max. 5 Adc
Operating temperature	-10°C - +50°C
Casing	ABS
Protection	IP 65
Dimensions	200x160x55.5mm
Weight	0.6 kg



- Aluminium Bronze Casing
- 6 or 18 High-Power LEDs Design
- White, Blue, Green, Three-Color or RGB Multi-Color Lighting
- Tempered Glass Optical Window
- High-Efficiency Lens
- Polarity Protection
- Transient Protection
- Thermal Protection
- Low Power Consumption
- Remote Control
- Digital Dimming (optional)
- DMX512 Network Control (optional)

Material of casing

AB2	aluminium bronze
ALN	anodized aluminium

Color of lighting - PLAQUE MFM0680

W	white
B	blue
G	green

Color of lighting - PLAQUE MFM18240

W	white
B	blue
G	green
3W	white-blue-green
3R	RGB multi-color



Simply...the brightest



Superyacht Underwater LED Lights

Ultra-thin compact design with built-in driver for surface-mount installation or installation with optional cofferdam.

Single-color light control by using optional momentary switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol

Multi-color RGB light control with dimming and changing of color of lighting manually or automatically through the complete rainbow spectrum by using optional momentary switch or optional DMX512 interface MXU01 or MXU03 with built-in ASTEL protocol.



Cylinder thru-hull design with separate power supply unit (driver) for installation with optional cofferdam.

Single-color light control by using optional momentary switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol

Multi-color RGB light control with dimming and changing of color of lighting manually or automatically through the complete rainbow spectrum by using optional momentary switch or optional DMX512 interface MXU01 or MXU03 and PWM dimmer MDU13 with built-in ASTEL protocol.



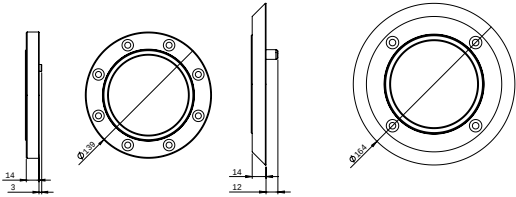
- Innovative Design
- Stainless Steel Ultra-Thin Casing
- 18 or 36 Power LEDs Design
- White, Blue, Green, Three-Color or RGB Multi-Color Lighting
- Tempered Glass or High Grade Polycarbonate Glass Optical Window
- High-Efficiency Lens or Vacuum Metalized Reflector
- Remote Control
- Digital Dimming
- DMX512 Network Control
- Polarity Protection
- Transient Protection
- Thermal Protection
- Wide Range Power Supply
- Low Power Consumption



Simply...the brightest

EQUATOR MSR36240S • EQUATOR MSR36240P

Power supply	24 Vdc, max. 3.4 A
Lens angle	60°
Optical window	High-grade polycarbonate glass
Luminous flux	max. 7.000 lm
White color temperature	6.000 - 10.000 K
Operating temperature	-10°C - +50°C
Casing	Stainless steel (SAE316L)
Protection	IP 68
Dimensions	Ø139 x 14 mm (S) • Ø164 x 14 mm (P)
Weight	1.4 kg (S) • 1.7 kg (P)

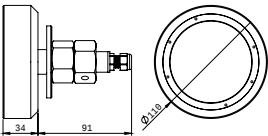


Color of lighting

W	☐ white
B	☐ blue
G	☐ green
M	☐ RGB multi-color

CONVEX MTH18240S

Power requirement	3x1.5 A
Lens angle	50°
Optical window	6 mm depth tempered glass
Luminous flux	9.000 lm
White color temperature	6.000 - 10.000 K
Operating temperature	-10°C - +50°C
Casing	Stainless steel (SAE316L)
Protection	IP 68
Dimensions	Ø110x125mm
Weight	1.9 kg



Color of lighting

W	☐ white
B	☐ blue
G	☐ green
3W	☐ white-blue-green
3R	☐ RGB multi-color

Power Supply Unit MPS061500

Input voltage	24 Vdc
Consumption	max. 5 Adc
Operating temperature	-10°C - +50°C
Casing	ABS
Protection	IP 65
Dimensions	200x160x55.5mm
Weight	0.6 kg

Superyacht Underwater LED Lights

Professional robust design with separate power supply unit (driver) for installation with optional welded cofferdam.

White-color light control by using optional momentary switch or optional DMX512 interface MXU01 or MXU03 with built-in ASTEL protocol.

Multi-color RGBW light control with dimming and changing of color of lighting manually or automatically through the complete rainbow spectrum by using optional momentary switch or optional DMX512 interface MXU01 or MXU03 with built-in ASTEL protocol.

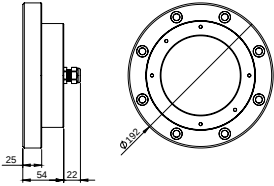


- Innovative Design
- Stainless Steel Ultra-Thin Casing
- 9 or 18 High-Power LEDs Design
- White or RGB Multi-Color Lighting
- Tempered Glass Optical Window
- Vacuum Metalized Reflector
- Remote Control
- Digital Dimming
- DMX512 Network Control
- Polarity Protection
- Transient Protection
- Thermal Protection

Color of lighting

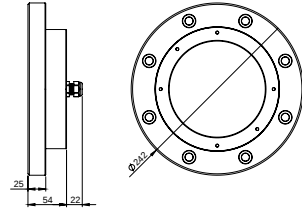
- W** white
M RGB multi-color

CONVEX MSR09200	
Power requirement	1 A (white), 3 x 1 A (RGB)
Lens angle	50°
Optical window	15 mm tempered glass
Luminous flux	14,000 lm (white)
White color temperature	6,000 - 10,000 K
Operating temperature	-10°C - +50°C
Casing	Stainless steel (SAE316L) or aluminium
Protection	IP 68
Dimensions	Ø192x54 mm
Weight	6.2 kg (stainless steel), 2.5 kg (aluminium)



Power Supply Unit MPS91000	
Input voltage	120-277 Vac, 50/60Hz
Consumption	120W (white), 100W (RGB)
Operating temperature	-10°C - +50°C
Casing	ABS
Protection	IP 56
Dimensions	300x220x120mm
Weight	3 kg (white), 4 kg (RGB)

CONVEX MSR18300	
Power requirement	2 x 1 A (white), 3 x 1 A (RGB)
Lens angle	50°
Optical window	15 mm tempered glass
Luminous flux	28,000 lm (white)
White color temperature	6,000 - 10,000 K
Operating temperature	-10°C - +50°C
Casing	Stainless steel (SAE316L) or aluminium
Protection	IP 68
Dimensions	Ø242x54 mm
Weight	9.4 kg (stainless steel), 3.7kg (luminium)



Power Supply Unit MPS181000	
Input voltage	120-277 Vac, 50/60Hz
Consumption	240W (white), 200W (RGB)
Operating temperature	-10°C - +50°C
Casing	ABS
Protection	IP 56
Dimensions	380x300x120mm
Weight	4 kg (white), 5 kg (RGB)



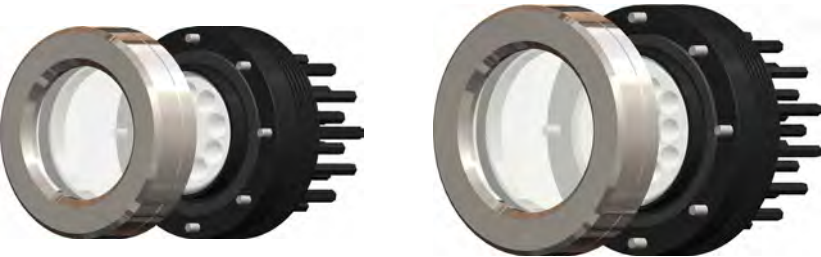
Simply...the brightest

Superyacht Underwater LED Lights

Professional robust design with separate power supply unit (driver) for installation with corresponding cofferdam which enables reliable management from the inside of the hull.

White-color light control by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 with built-in ASTEL protocol.

Multi-color RGBW light control with dimming and changing of color of lighting manually or automatically through the complete rainbow spectrum by using optional momentay switch or optional DMX512 interface MXU01 or MXU03 with built-in ASTEL protocol.



- Innovative Design
- High-Grade Aluminium or Stainless Steel Cofferdam with Aluminium Light Body
- 9 or 18 High-Power LEDs Design
- White or RGB Multi-Color Lighting
- Tempered Glass Optical Window
- Vacuum Metalized Reflector
- Remote Control
- Digital Dimming
- DMX512 Network Control
- Polarity Protection
- Transient Protection
- Thermal Protection

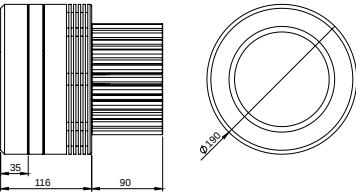
Color of lighting
W white
M RGB multi-color

PLAQUE MFM09200

Power requirement	1 A (white), 3 x 1 A (RGB)
Lens angle	50°
Optical window	15 mm tempered glass (cofferdam)
Luminous flux	14.000 lm (white)
White color temperature	6.000 - 10.000 K
Operating temperature	-10°C - +50°C
Casing	Aluminium
Protection	IP 68
Dimensions	Ø190x170 mm (without cofferdam)
Weight	4.8 kg (without cofferdam)

Power Supply Unit MPS91000

Input voltage	120-277 Vac, 50/60Hz
Consumption	120W (white), 100W (RGB)
Operating temperature	-10°C - +50°C
Casing	ABS
Protection	IP 56
Dimensions	300x220x120mm
Weight	3 kg (white), 4 kg (RGB)

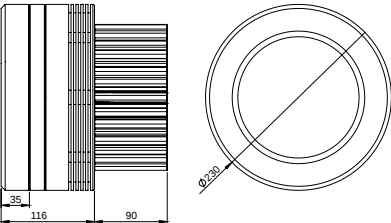


PLAQUE MFM18300

Power requirement	2 x 1 A (white), 3 x 1 A (RGB)
Lens angle	50°
Optical window	15 mm tempered glass (cofferdam)
Luminous flux	28.000 lm (white)
White color temperature	6.000 - 10.000 K
Operating temperature	-10°C - +50°C
Casing	Aluminium
Protection	IP 68
Dimensions	230x170 mm (without cofferdam)
Weight	7.1 kg (without cofferdam)

Power Supply Unit MPS181000

Input voltage	120-277 Vac, 50/60Hz
Consumption	240W (white), 200W (RGB)
Operating temperature	-10°C - +50°C
Casing	ABS
Protection	IP 56
Dimensions	380x300x120mm
Weight	4 kg (white), 5 kg (RGB)



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Wireless Yacht Control Systems

Patented RF microprocessor-based high-reliable wireless remote control system for motor yachts designed especially for controlling engines, thrusters and anchor windlass. By using the remote controller the skipper has control over his vessel from any spot on the yacht. High-quality switches and keys are used to control both engines, bow and stern thrusters as well as the anchor windlass during anchoring.

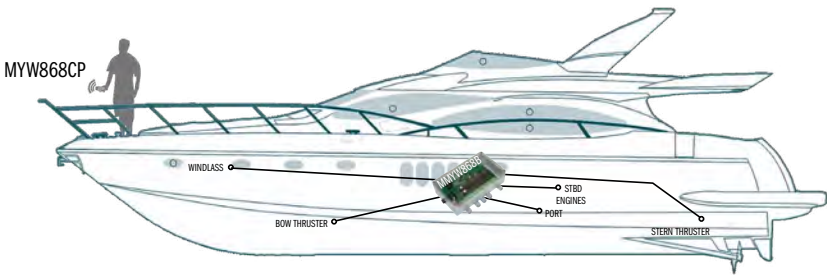
The remote controller is encased in an ergonomically designed watertight housing ensuring simple operation and portability. Thanks to the carrying cord provided it can even be worn around the neck thus freeing the hands for other tasks during docking. The steering of the vessel is thus always at the skipper's fingertips in case of any corrections of the vessel's movement due to wind or other factors are required.

During anchoring, complete control of the vessel is possible from the bow which allows the skipper to precisely determine the position of the anchor and avoid any underwater obstacles. During the weighing of the anchor, proper manoeuvring of the vessel is possible right from its bow, thus avoiding any overloads on the anchor windlass and possible entanglement with another anchor.

Dangerous and unforeseeable situations, due to incorrect instructions from crew members, are thus effectively eliminated also during the procedure of tying a line onto a floating buoy. Thanks to the remote controller the skipper can manoeuvre the vessel to the buoy with pinpoint accuracy and secure the line without any assistance.

Additional control unit can be supplied to connect the system to the special electronic control heads or to connect to the secondary electronic control head if the yacht is fitted with a fly-bridge.

- High-Reliable Patented Design
- Port Engine Control
- Starboard Engine Control
- Anchor Windlass Control
- Bow Thruster Control
- Stern Thruster Control
- Transmit LED Indicator
- Low Battery LED Indicator
- ABS Casings with IP65 and IP67 Protection
- Low-Power Consumption
- Simple Connecting



PATENTED

MYW868B/CP

Number of channels	6, 8 or 10
Transmission code	40 bit
Frequency	868 MHz

Transmitter

RF output power	max. 10 mW
Power requirement	3V lithium battery CR2
Operating temperature	0°C - +50°C
Casing	ABS, IP65 protection
Dimensions (L x W x H)	150 x 60 x 34 mm
Weight (incl. battery)	0.2 kg



Receiver

Power requirement	12 - 24Vdc
Consumption	max. 300 mAdc
Operating temperature	0°C - +50°C
Casing	ABS, IP65 protection
Dimensions (L x W x H)	200 x 120 x 55 mm
Weight	0.5 kg



Number of channels

- | | |
|---|---|
| 3 | 3-channel control system: <ul style="list-style-type: none">- port/starboard engine control- anchor windlass control |
| 4 | 4-channel control system: <ul style="list-style-type: none">- port/starboard engine control- bow-thruster control- anchor windlass control |
| 5 | 5-channel control system: <ul style="list-style-type: none">- port/starboard engine control- bow-thruster control- stern-thruster control- anchor windlass control |



When landing becomes a pleasure...

GSM Alarm and Remote Control Units

GSM remote controllers specially designed to use in marine applications. The built-in GSM module with different interfaces enables simple and easy control and management of complete yacht electrical and electronic equipment through GSM mobile phone. Alarm inputs enable intruder, fire and water income alarming and voltage and temperature alarming and measuring, etc. The built-in relays enable the remote control of different yacht devices. The built-in GPS receiver enables the position tracking and alarming in the case of leaving or approaching to the hold position.

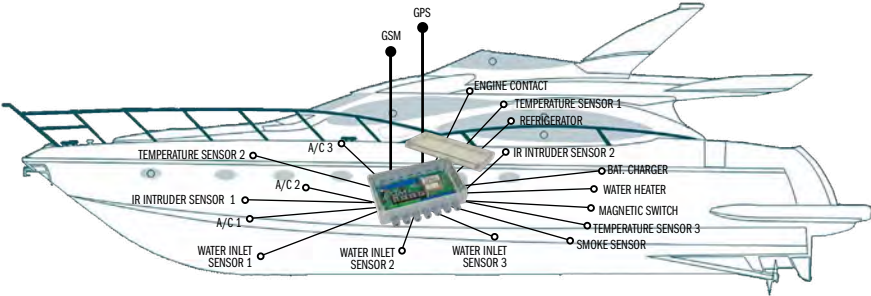
The control of the unit is possible by the help of SMS text messages or by the help of tone (DTMF) dialing. Alarming is possible by receiving the SMS text messages or by alarm calls or by the combination of both of them. Interactive voice responder confirms the requests during DTMF control or inform about the type of alarm when alarm occurs. The unit enables speaker and microphone connection for remote communication. Programming is possible by the help of SMS text messages or with PC by the help of RS-232 serial interface.

By the help of wireless sensors and wireless keyfob transmitter the installation, control and management become more simple and user-friendly.

- Built-In GSM Module with SIM Interface
 - Built-In GPS Module for Location Management and Alarming
 - SMS Control
 - DTMF (PSTN, ISDN, GSM) Control
 - IVR (Interactive Voice Responder)
 - Temperature Measuring and Management
 - Analog Voltage Measuring and Management

- Alarm Sensors Management
 - Wireles Sensors Connection Capability
 - Remote Keyboard Interface
 - Speaker and Microphone Interface
 - PC Remote and Local Management
 - Wide Range Power Supply
 - Rechargeable Battery Connection
 - ABS Casing

MODEL	DIGITAL INPUTS	ANALOG INPUTS	DIGITAL OUTPUTS	RELAY OUTPUTS	TEMPERATURE SENSORS INTERFACE	KEYBOARD INTERFACE	RS-232/RS-485 INTERFACE	I2C INTERFACE	AUDIO INTERFACE	SMS CONTROL - ALARMING AND PROGRAMMING	ALARMING WITH CALLING	DTMF CONTROL AND MANAGEMENT	IVR - INTERACTIVE VOICE RESPONDER	IP-65 CASING PROTECTION	GPS TRACKING AND ALARMING	WIRELESS SENSORS POSSIBILITY	KEYFOB TRANSMITTER MANAGEMENT
MGR 100 Basic	8	-	-	-	-	(Yes)	-	-	-	Yes	(Yes)	-	-	Yes	-	-	-
MGR 100G Basic	8	-	-	-	-	(Yes)	-	-	-	Yes	(Yes)	-	-	Yes	-	-	-
MGR 100W Basic	8	-	-	-	-	(Yes)	-	-	-	Yes	(Yes)	-	-	Yes	-	Yes	Yes
MGR 100GW Basic	8	-	-	-	-	(Yes)	-	-	-	Yes	(Yes)	-	-	Yes	Yes	Yes	Yes
MGR 100 Advance	8	4(6)	4	4	3	(Yes)	-	-	-	Yes	(Yes)	Yes	-	Yes	-	-	-
MGR 100G Advance	8	4(6)	4	4	3	(Yes)	-	-	-	Yes	(Yes)	Yes	-	Yes	Yes	-	-
MGR 100W Advance	8	4(6)	4	4	3	(Yes)	-	-	-	Yes	(Yes)	Yes	-	Yes	-	Yes	Yes
MGR 100GW Advance	8	4(6)	4	4	3	(Yes)	-	-	-	Yes	(Yes)	Yes	-	Yes	Yes	Yes	Yes
MGR 100 Reference	8	4(6)	4	4	3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-
MGR 100G Reference	8	4(6)	4	4	3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-
MGR 100W Reference	8	4(6)	4	4	3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	Yes	Yes
MGR 100GW Reference	8	4(6)	4	4	3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes



MGR100	
Power supply	12-30 Vdc
Accumulator (option)	1, the same voltage as power supply
Relays*	2 x NO/COM, 2 x NO/NC/COM
Digital outputs*	4, open-collector
Digital inputs	8, NO, TTL, 12V
Analog inputs*	4 (6), 0-30 Vdc (10 bit, ±2LSB)
Temperature sensor interface*	3, I2C interface
Keyboard interface**	1
Audio interface**	1, speaker, microphone
I2C interface**	1
PC serial interface**	1, RS-232
Casing	ABS
Protection	IP-65 (VDE)
Dimensions	210x165x55mm
Weight	0.7 kg

GSM module	
Quad-band	E-GSM-900, GSM-850, DCS-1800, PCS-1900
SIM card interface	3V
Antenna connector	SMA

GPS module***	
GPS receiver	12-parallel channel GPS receiver 1 second update rate Accuracy position < 15m, 95% typical (100m with selective availability on) -165 dBW min.
Sensitivity	-165 dBW min.
Antenna connector	SMA

(*) - only for ADVANCE and REFERENCE models
(**) - only for REFERENCE model
(***) - only for MGR100G models with GPS receiver

- Model**

Basic

G Basic

W Basic

GW Basic
- basic features
GPS tracking and alarming
wireless sensors possibility
GPS tracking and alarming,
wireless sensors possibility
- Advance**

G Advance

W Advance

GW Advance
- basic features
GPS tracking and alarming
wireless sensors possibility
GPS tracking and alarming,
wireless sensors possibility
- Reference**

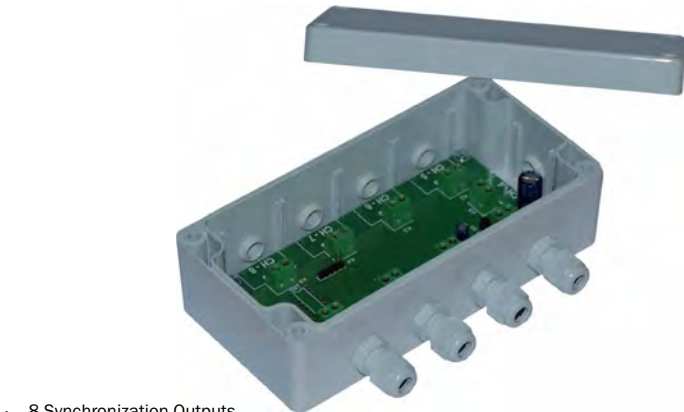
G Reference

W Reference

GW Reference
- basic features
GPS tracking and alarming
wireless sensors possibility
GPS tracking and alarming,
wireless sensors possibility

Accessories

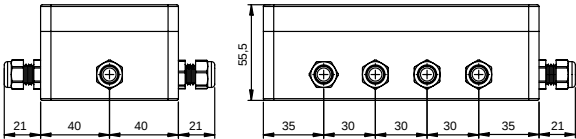
Synchronization of color of lighting for complete group of multi-color RGB lights when automatical changing of color of lighting through the complete rainbow spectrum is selected and controlled by using optional momentay switch.



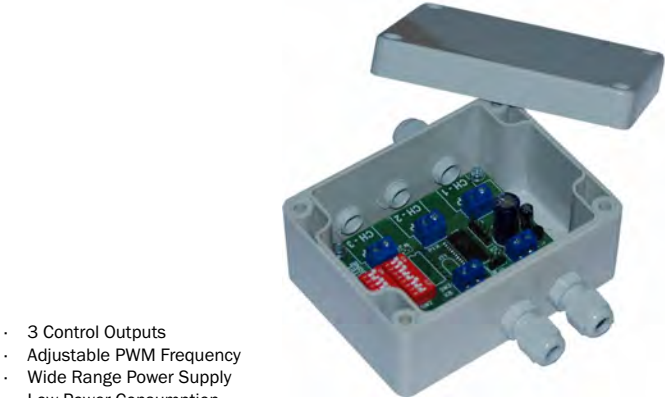
- 8 Synchronization Outputs
- Wide Range Power Supply
- Low Power Consumption
- Polarity Protection
- Transient Protection
- Short Circuit Output Protection
- Simple Installation

Synchronization Unit MSU08

Input voltage	12-24 Vdc
Consumption	max. 10 mAdc
Operating temperature	-10°C - +50°C
Casing	ABS
Protection	IP 65
Dimensions	max. 181x122x55.5mm
Weight	0.3 kg



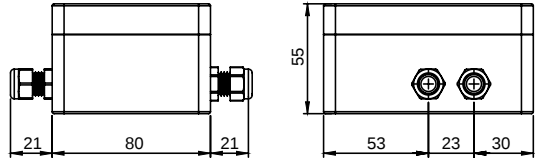
Dimming of single-color lights or group of lights by using optional momentay switch. Three-color light control with dimming and changing of color of lighting manually or automatically through the complete rainbow spectrum by using optional momentay switch. Built-in ASTEL protocol to control single-color lights or three-color lights by using optional DMX512 interface MXU01 or MXU03.



- 3 Control Outputs
- Adjustable PWM Frequency
- Wide Range Power Supply
- Low Power Consumption
- Polarity Protection
- Transient Protection
- Short Circuit Output Protection
- Simple Installation

PWM Dimmer MDU13

Input voltage	12-24 Vdc
Consumption	max. 10 mAdc
ASTEL protocol default address	1
Operating temperature	-10°C - +50°C
Casing	ABS
Protection	IP 65
Dimensions	max. 106x122x55.5mm
Weight	0.2 kg



Accessories

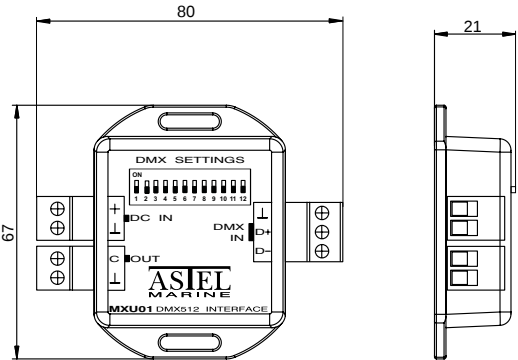
DMX512 to ASTEL protocol multi-light converter to control multi-color RGB light or one group of multi-color RGB lights with built-in ASTEL protocol or to control single-color light or one group of single-color lights by the help of PWM Dimmer MDU13 with built-in ASTEL protocol.



- 1 Control Output
- DIP-switch Programmable
- Multi - Speed Mode
- Wide Range Power Supply
- Low Power Consumption
- Polarity Protection
- Transient Protection
- Short Circuit Output Protection
- Simple Installation

DMX512 Interface MXU01

Input voltage	12-24 Vdc
Consumption	max. 50 mAdc
Operating temperature	-10°C - +50°C
Casing	ABS
Dimensions	max. 67x80x21mm
Weight	0.1 kg



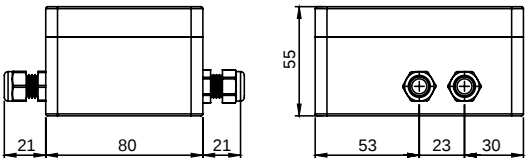
DMX512 to ASTEL protocol multi-light converter to control multi-color RGB lights or up to 3 groups of multi-color RGB lights with built-in ASTEL protocol or to control single-color lights or up to 3 groups of single-color lights by the help of PWM Dimmers MDU13 with built-in ASTEL protocol.



- 3 Control Outputs
- DIP-switch Programmable
- Low Speed Mode
- Wide Range Power Supply
- Low Power Consumption
- Polarity Protection
- Transient Protection
- Short Circuit Output Protection
- Simple Installation

DMX512 Interface MXU03

Input voltage	12-24 Vdc
Consumption	max. 50 mAdc
Operating temperature	-10°C - +50°C
Casing	ABS
Protection	IP 65
Dimensions	max. 106x122x55.5mm
Weight	0.2 kg



Accessories

To protect the Underwater LED Lights against galvanic corrosion where the underwater lights are installed on steel or aluminium hull.

Isolation Board IB01

Thickness	1 mm
Material	polycarbonate

Underwater Light series

EQ06	for Equator MSR0640 series
EQ12	for Equator MSR1280 series
EQ36	for Equator MSR36240 series
CU06	for Conus MST0680 and MSR0680 series
CU18	for Conus MST18240 and MSR18240 series
CX06	for Convex MST0680 and MSR0680 series
CX18	for Convex MST18240 and MSR18240 series
PQ06	for Plaque MFM0680 series
PQ18	for Plaque MFM18240 series

Superyacht Underwater Light series

EQ36P	for Equator MSR36240P series
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To connect the Wireless Yacht Control System to the special electronic control heads or to connect to the second electronic control head, connection cable enclosed.

- Multi-Control Relay Outputs
- LED indicators
- Wide Range Power Supply
- Low Power Consumption
- ABS Casings with IP65 and IP67 Protection

Additional Control Unit MYW868BE

Power requirement	12 - 24Vdc
Consumption	max. 300 mAdc
Operating temperature	0°C - +50°C
Casing	ABS, IP65 protection
Dimensions (L x W x H)	160 x 100 x 55 mm
Weight	0.3 kg

To install the Superyacht Underwater LED Lights. Enables reliable installation and maintenance. Made of material as specially requested.

Cofferdam CD01

Superyacht underwater light series

EQ36S	for Equator MSR36240S series
CX18S	for Convex MTH18240S series
CX09P	for Convex MSR09150 series
CX18P	for Convex MSR18300 series
PQ09P	for Plaque MFM09150 series
PQ18P	for Plaque MFM18300 series





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